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### An Explanation of “Emotional” Phenomena without the use of the Concept “Emotion”

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AN EXPLANATION OF "EMOTIONAL" PHENOMENA  
WITHOUT THE USE OF THE CONCEPT  
"EMOTION"\*

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For many years the writer has been of the opinion that "emotion," as a scientific concept, is worse than useless. In 1934, in an article published in the *Psychological Review*, she examined the various types of definition of emotion offered by psychologists and reached the conclusion that no one of these types of definition succeeded in describing a state or response pattern of the organism different in *kind* from other states or response patterns (3). "Emotion" apparently did not represent a separate and distinguishable condition. Each definition purporting to describe such a distinguishable condition succeeded in describing, not a difference in *kind* of response, but merely a difference in the *degree* to which certain characteristics of response were manifest. Nor was there any criterion by which to determine *what particular degree* of a certain characteristic should be called "emotion" and what degree should be called "non-emotion." Instead, the phenomena described appeared to occur in a continuum, or rather in a number of continua, since more than one aspect of behavior was involved in the description of "emotion," and there was no indication as to what points on the continua represented the transition from "non-emotion" to "emotion." The concept "emotion" apparently referred to the extremes of certain continua of response, but it implied, not continuous variation in these phenomena, but a sharp break between "emotion" and "non-emotion." In fact, "emotion" was supposed to follow different principles of action from "non-emotion." The writer contended that the concept "emotion" should be abandoned and the phenomena loosely referred to by this term should be studied in their own right as separate aspects of response occurring in continua rather than in discrete categories.

But, alas, the concept "emotion" has not been abandoned. Psy-

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chologists remain convinced that the term refers to a distinguishable category of response, and they persevere in the attempt to give this category more adequate definition. The descriptions of "emotion" which have appeared since 1934 differ in no significant respects from those which had appeared prior to that time. The reading of these definitions has left the writer with a sentiment similar to that expressed by William James in regard to the classificatory descriptions of the separate emotions—that he "should as lief read verbal descriptions of the shapes of the rocks on a New Hampshire farm as toil through them again." Yet if psychologists continue to believe that "emotion" exists there must be some reason for their belief. And the reason must be one which is not affected by the demonstration of the inadequacy of our present definitions of "emotion." That inadequacy merely spurs them to renewed efforts to describe in a satisfactory manner a category of response whose existence they do not question.

One reason for the well nigh universal belief in "emotion" is that every man has experienced a vivid, unforgettable condition which is different from the ordinary condition in which he finds himself. It may be more pleasant or more unpleasant, but it appears to have a unique quality which differentiates it from the general run of his experience. To this condition he gives the name "emotion," and it would take more than the arguments of a misguided psychologist to convince him that he does not experience that which he knows so well he does experience. Hence, if a psychologist wishes to question the concept "emotion," it is not sufficient that he show the inadequacies of the concept; he must offer in addition some explanation of the experiences which have been called "emotion." He must show that these experiences, which appear to be unique, are in fact merely manifestations in extreme degree of phenomena which are of very general occurrence, and which follow the same principles of action throughout the continua of their occurrence, rather than different principles of action during the condition called "emotion." To that task I now address myself.

The experience which is labelled "emotion" is the conscious aspect of a response, or group of responses, which the individual makes to a stimulating situation which he interprets as having marked significance for himself, favorable or unfavorable. I think it will be agreed that the individual does not experience "emotion" except in situations which are of significance to him. He is "afraid" or

"angry" when he is threatened, or when his progress toward an important goal is blocked. He is "joyful" or "elated" when his progress toward an important goal is facilitated. Hence, "emotion" is the individual's response to situations which promise well or ill for the attainment of his goals. The term refers to how the individual *feels* and how he *acts* when his *expectations* in regard to a *situation* are that it will, or it will not, permit him to reach some rather strongly desired goal. The strength or intensity of the "emotion" is roughly proportional to the degree of importance of the particular goal to the individual, and to the degree of threat or of promise which the present situation bears with reference to that goal. However, it must be emphasized that the response of the individual, or the "emotion" he manifests, is that which is appropriate to the situation as *he interprets it*, not that which would be appropriate to the situation in the opinion of other individuals. The "emotional" response of the neurotic or the psychotic, for example, is frequently too much or too little for the situation as it is generally interpreted, but it is no doubt appropriate to the situation as it is viewed by the individual making the response. It follows, then, that the "emotion" experienced in a given situation depends upon the nature of the individual's goals and upon the background of experience and quality of insight which he brings to bear upon the interpretation of the situation. Older children, for example, fear situations which younger children do not fear (6). Their expectations in regard to these situations are different.

Starting from the proposition that "emotion" represents an adjustment of the individual, or a response to the stimulating situation as the individual interprets it, we may ask what are the characteristics of the response or adjustment which is called "emotion." In the first place, emotion represents a change in the *energy level*, or degree of reactivity, of the individual. The excited individual has an energy level which is higher, and the depressed individual an energy level which is lower, than that which he ordinarily experiences. By "energy level" I refer to the degree of mobilization of energy within the organism, which Cannon (1) found to be very high during the excited "emotions"; or to what Freeman (5, p. 326) has defined as "the general organic background (neuro-glandular-muscular) which operates to sustain and energize overt phasic response." Change in energy level appears to be the most characteristic feature of the condition called "emotion." It occurs as an adjustment to the

stimulating situation. Situations which are interpreted as threatening or thwarting are characteristically responded to with increased energy, for by means of this increased vigor of response the individual may, in spite of difficulties, be able to reach his goal. Such vigorous response is frequently observed in "fear" or "anger." Increase in the energy level of response is observed also, though perhaps to a lesser degree, in "joy," for "joy" is the response made when the situation suddenly changes, or is interpreted to change, in such a way that progress toward the goal is facilitated. Under these circumstances the individual either actually or imaginatively moves quickly forward to the attainment of his goal. The phenomenon is similar to that observed when the rat in the maze moves more quickly through the alleys at the end of his route and nearest to the food box, or when the human subject works most rapidly on the last of a group of problems which he must solve. The *energy level* of the individual's responses *increases*, then, both when progress toward his goal is blocked and when barriers to his progress are suddenly removed.

Under what circumstances do we find, not an increase, but a decrease in *energy level*? Characteristically, I believe, when the individual is making no attempt, or almost no attempt, to reach a goal. Such is the situation found in depression. When an individual's progress toward a goal is completely blocked by some circumstance which he interprets as an insuperable obstacle, he ceases to be active in relation to that goal. We say that he has "given up," or that he is "resigned," or that he is in a "depressive stupor," depending upon the degree of departure of his activity level from that which is usual. This lack of responsiveness, this low energy level, may persist for a considerable length of time and may affect the individual's responses to other goals which are not in themselves unattainable. Because the individual has given up hope of reaching some highly desired goal, other goals have lost their appeal. There is no longer sufficient "motivation" for normally vigorous action.

But we do not always find clear-cut instances of either striving with great effort to reach a goal or sinking into almost complete inactivity in relation to all goals. Sometimes the picture is confused. In agitated despair, for example, the individual has given up all hope of reaching a particular highly desired goal, but he has not become inactive. His energy level is high. In this case the blocking of progress toward a goal of primary importance has resulted, not

in lack of interest in all other goals, but in great compensatory activity, as seen, for example, in attempts at revenge or suicide. This example and the others which we have cited illustrate the principle that the energy level of the individual will be high or low depending on whether he is or is not attempting to reach goals of great importance to him, or, in other words, according to the degree to which he is motivated.

But *all* behavior is motivated. Without motivation there is *no activity*. The conditions to which we give the name "emotion" represent merely unusually high or unusually low degrees of motivation and consequently unusually high or unusually low levels of energy. We have no criterion, however, by which to determine whether a given energy level is high enough or low enough to be called "emotion," and it would not be useful to employ such a criterion if we had it unless it could be shown that energy levels high enough or low enough to be called "emotion" result in behavior different in *kind*, and not merely in *degree*, from that resulting from levels of energy intermediate between these extremes. The responses called "emotional" do not appear to follow different principles of action from other adjustive responses of the individual. Changes in internal or external conditions, or in the interpretation of those conditions, always result in internal accommodations. The responses made are specifically adjustive to the situation and are not subject to classification into such categories as "emotional" and "non-emotional." An example of this fact may be seen in some studies of the maintenance of the blood sugar level made by Silvette and Britton (8). It was demonstrated that changes which occur in the blood stream may be induced by any of a number of factors which affect the essential equilibria of the organism—by "emotion," by intense physical activity, or by a change in temperature. There is no reason to conclude that the blood sugar changes occurring when the organic equilibrium was disturbed by so-called "emotional" stimuli were any different from those occurring when the same degree of disequilibrium was produced by physical activity or exposure to cold.<sup>1</sup>

<sup>1</sup>Silvette and Britton (8, p. 691) make the following observation: "It is pertinent to emphasize that the influences of emotion on important chemical constituents of the body are essentially similar to those which are brought about by severe muscular exertion. Both motion and emotion result in release to the blood stream and degradation in the tissues of energy-supplying substances, and concurrent accumulation of the products of tissue oxidation or metabolites."

All responses—not merely “emotional” responses—are adjustive reactions attempting to adapt the organism to the demands of the situation. The energy level of response varies with the requirements of the situation as interpreted by the individual. Diffuse internal changes (especially in the viscera) are involved in the production of these changes in energy level. But continuous visceral activity, with accompanying changes in energy level, is a function of life itself, not merely a function of a particular condition called “emotion.” We have in fact a continuum of response which has been artificially broken into the categories, “emotional” and “non-emotional.”

A second characteristic of “emotional” responses is that they are frequently, if not usually, disorganized. The angry or fearful individual often fumbles in his movements and is confused in his thinking. His speech is frequently incoherent. The depressed individual, too, may manifest incoördination in speech, thought, and movement. However, disorganization of response is a function, I believe, not of a unique state or condition called “emotion,” but a function, though not an invariable one, of any behavior which occurs at a very high or a very low energy level. Since the term “emotion” is applied to much of the behavior which occurs at high or low levels of energy, disorganization of response has appeared to be a distinguishing feature of “emotion.” We have on record, however, a number of instances in which “emotion” has been accompanied by no disorganization of response, and a number of instances in which disorganized responses have occurred under conditions not ordinarily called “emotional.” Stratton (9), for example, has reported a case in which the “emotion” aroused in a man by the sight of the flaming bathrobe of his niece caused him to think and to move with extraordinary speed and effectiveness. The heightened energy level produced by the situation resulted in this instance, not in disorganization, but in increased speed and force of action, with no loss in coördination. Some degree of disorganization of response has been found, on the other hand, in most situations where the adjustive response is not a well-established habit. It occurs frequently during the learning of a new motor skill or during the attempt to solve a difficult “mental” problem. It is likely to occur in any type of situation in which the individual is too highly motivated, i.e., has too high an energy level. The over-eager golfer, teeing off, makes a poor shot. The enthusiastic child, speaking of something which interests him intensely, begins to stammer. Disorganized responses



occur also when the individual is drowsy or fatigued. Under these conditions the energy level is usually too low for effective behavior. And, finally, disorganization of response occurs as a result of the physiological condition produced by glandular dysfunction or by the administration of drugs. It is apparent, then, that disorganized response is not peculiar to "emotion"; nor is there any particular degree of disorganization of response which is caused *always* by "emotional" stimuli. But most "emotional" conditions, involving as they do unusually high or unusually low levels of energy, usually involve also disorganization of response, but the disorganization appears to be a function, not of "emotion" *per se*, but of the *energy level* of the response, since disorganization is found at high and at low levels of energy which are not ordinarily called "emotional."<sup>2</sup>

A third characteristic attributed to "emotion," and one which is generally considered most indisputable, is that "emotion" involves a unique kind of sensation or quality of consciousness. Whatever may be said about the lack of uniqueness of "emotional" *responses*, the individual is likely to feel that the *conscious* quality of "emotion" is different from that which he experiences under any other circumstances. He describes "a lump in the throat," or "a turning of the stomach," or the heart's "skipping a beat." These sensations appear to him to be not merely different in *degree* but actually different in *kind* from those which he experiences on ordinary occasions. Sometimes, when he is "emotional," he feels unusually helpless and confused. At other times he feels unusually powerful. So different are these feelings from his usual experiences that he may report that he feels "beside himself" with anger or with joy. Is it possible that a conscious state of this kind, one of the most vivid ever experienced by the individual, differs merely in degree, and not in unique quality, from the states of consciousness which make up most of our experience in everyday life? I think it is.

The subjective qualities of "emotion" appear to derive from two sources: (*a*) awareness of the bodily changes which occur in the process of adjusting the energy level of the individual to the demands of the situation, and (*b*) awareness of the stimulus situation and of the set for response to that situation. "Emotional" experience is merely the conscious counterpart of the adjustments which the individual makes to stimulating conditions which are of sufficient

<sup>2</sup>For a fuller discussion of *energy level* and of *disorganization of response*, see E. Duffy (4).

significance to cause a marked change in his energy level and his set for response.

Sudden and extreme changes occur in the viscera and in the skeletal muscles when the individual attempts to make a quick and extensive readjustment for which he is not "set" or prepared. The *sudden* change in the situation demands a *sudden* change both in overt movement and in the processes supplying the energy for that movement. These sudden changes in physiological functioning are experienced by the individual as strange and vivid sensations which are described in such picturesque terms as those of the stomach's "taking a flop" or the heart's "being in the throat." Such sensations occur only when the "emotional" stimulus appears unexpectedly or when the *interpretation* of the situation abruptly changes. Situations which demand, not sudden readjustments, but more gradual readjustments, such, for example, as the change in energy level and in overt behavior which occur as the individual gradually comes to believe that he is exposed to danger, also produce changes in conscious experience which correspond to the changes in adjustive activity, but in these situations the individual is not conscious of sudden, violent changes in the viscera, for no such changes occur, since no sudden change in the stimulus situation requires them. When the energy level of the individual increases or decreases in marked degree, the individual "feels" different from the way he does under ordinary circumstances; he experiences different sensations. If this change in energy level takes place gradually, is not too extreme, and persists for some time, he experiences a "mood"; if it takes place in extreme degree or occurs suddenly, he is likely to experience an "emotion."

But the awareness of "how the body feels" does not make up the whole of the conscious quality of "emotion." The bodily sensations have an external reference. They are viewed by the individual as having been *caused* by a certain situation. They are part of a more comprehensive whole which includes the *interpretation* of the *stimulus situation*, *expectations* of future developments in the situation, and the *set* of the individual for response to that situation. Without this characteristic context for the visceral sensations the individual who experiences visceral changes is likely to be uncertain as to whether or not he is experiencing "emotion." Experiments by Cantril and Hunt (2) and by Landis and Hunt (7) offer support for this point of view. Subjects to whom adrenalin was administered (which, of course, produced visceral changes similar to those

occurring during the excited emotions) reported in some instances that they experienced "emotion," in other instances that they did not experience "emotion," and in a number of cases that they felt "as if" they were angry or "as if" they were afraid.

The conscious experience of "emotion" appears, then, to be a complex which includes awareness of the stimulus situation and its significance, awareness of the set for response, and awareness of certain physiological changes which are occurring in the individual. But what "non-emotional" state of consciousness is devoid of any one of these factors? And what characteristic quality of any one of these factors has been found to be present in "emotional" states alone? The consciousness of these various aspects of the situation may be somewhat "blurred" during "emotion," especially during the *strong* "emotions"; but disorganization is to be expected in both experience and behavior which occur at a very high or a very low energy level.

The "unique" conscious quality attributed to "emotion" appears to refer either to the pleasantness-unpleasantness aspect of *all* experience, and not merely of "emotional" experience, or else to the vivid and unusual sensations experienced when sudden and extreme physiological readjustments occur, as they do when a sudden change in energy level is demanded. If it refers to the former, it may be said to represent a characteristic of consciousness itself and not a distinguishing feature of "emotion." If it refers to the latter, it may be said to represent the conscious counterpart of adjustive responses which differ from other responses in *degree* rather than in *kind*; hence the conscious experience must itself differ from other conscious states in degree rather than in unique quality. Changes in energy level, in degree of organization of responses, and in conscious state occur in a continuum. There is no point on this continuum where a "non-emotional" energy level changes suddenly to an "emotional" energy level; there is no point at which a "non-emotional" degree of disorganization of response changes suddenly to an "emotional" degree of disorganization; and there is no point at which a "non-emotional" conscious state changes suddenly to an "emotional" one. These characteristics of experience and behavior show continuous variation rather than separation into hard and fast categories. Extremes of the continuum are readily identified as "emotion"; intermediate points offer difficulty in identification. For example, slight changes in energy level such as occur during "interest" or "boredom"

usually leave the individual uncertain as to whether he is experiencing "emotion"; extreme changes, such as occur in "anger," are unequivocally identified as "emotion." The conscious quality of "emotion," like other aspects of "emotion," represents a variation in *degree* rather than a difference in *kind*.

I am aware of no evidence for the existence of a special condition called "emotion" which follows different principles of action from other conditions of the organism. I can therefore see no reason for a psychological study of "emotion" as such. "Emotion" has no distinguishing characteristics. It represents merely an *extreme* manifestation of characteristics found in some degree in all responses. If there is any particular point at which a difference in *degree* becomes a difference in *kind* this fact has not been demonstrated. Yet in psychological description we deem it necessary to state that "emotional" processes *also* follow laws already laid down for other kinds of behavior. For example, when we have shown that behavior in general shows the phenomenon of "conditioning," we find it necessary to state that "emotional" behavior *also* may be conditioned. When we have shown that motives affect the level of activity of the individual, we find it necessary to state that "emotions" *also* may have this result. It would be more in accord with the facts to state instead that the energy level of an organism depends upon the degree and suddenness of the disturbance of its equilibrium by both internal and external factors, and that the responses made are specifically adjustive to the situation. Since situations show endless variation in their details, adjustments to those situations must show corresponding variation. They will not be readily classifiable, therefore, into "emotion" or "non-emotion," or into any of the categories represented by our names for the specific "emotions."

*All* responses, not merely "emotional" responses, occur as adjustments to stimulating conditions. *All* responses, not merely "emotional" responses, occur at some particular *energy level*. *All* responses, like "emotional" responses, show *direction* toward a goal; and *all* responses manifest *discrimination*, or response to relationships. "Emotion" is an adjustment made to a stimulating condition of such a kind that the adjustment involves a marked change in energy level. It involves, like other behavior, interpretation of the situation, or response to relationships. And from the goal-direction of the overt behavior, or of the set for response, are derived the classificatory divisions into the particular "emotions," such as "fear" or "rage."

Its characteristics—its principles of action—are those of behavior in general. It has no laws or qualities of its own. It is futile, therefore, to look for an “indicator” of “emotion.” It is futile to inquire, “*What are the effects produced by ‘emotion’?*” For a so-called “emotional” condition will *vary* in its effects, depending upon the *energy level* at which the behavior occurs, upon the adequacy with which *direction* toward the goal is maintained (or disorganization of response avoided), and upon the nature of the *response to the relationships* in the situation. Behavior not classified as “emotional” also varies with variations in these three aspects of response. Instead of investigating “emotion” per se, we could more usefully study variations in these three fundamental dimensions of behavior, determining the conditions under which such variations occur and the effects produced by their occurrence. Perhaps, when we formulate our questions better, Nature will be more obliging in her replies.

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